GRADE: 5th –7th grade
TIME: ½ -1 hour
SEASON: All

Aging of Trees

National Science Teaching Standards

A. Science as **INQUIRY**
C. LIFE Science
D. EARTH Science
E. Science **TECHNOLOGY**
F. Science in **PERSONAL** and **SOCIAL PERSPECTIVE**
G. HISTORY and **NATURE** of Science

Background Information:

Dendrochronology, the study of tree ring dating, utilizes tree rings to tell the age of wooden objects. This method can be used to tell the average age of trees or of wooden artifacts.

Foresters use an increment borer to obtain core samples from trees. The increment borer is twisted ½ the distance of the diameter through the tree and then removed, bringing with it a core sample. The hole in the tree is plugged to prevent infection. By counting the xylem rings in the core sample the age of the tree can be determined.

Wet and dry years can be identified by examining the individual rings (the spaces between the dark lines) on the core sample. Thicker rings indicated wetter years and thinner rings indicate dryer years.

Archeologists sometimes use tree rings to help determine the age of artifacts. A piece of a wooden artifact is obtained and the xylem pattern is compared with a master chart dating back several hundred or even thousands of years. By matching xylem rings of the artifact with those of the chart, the age of the artifact can be determined.

Objective:

Student will develop a basic knowledge of the principle of tree ring dating by using a simulated core sample from a tree (A) and one from an old miner's cabin (X).

Pre Activity:

- Using the library resources and internet, find trees that are common to Iowa.
- Share and discuss **Background Information** with students.
- "Tree Cookie" activity, *Iowa Supplements to Project Learning Tree*, pp.64-67

Equipment:

- 1 simulated core sample from a tree (marked "A")
- 1 simulated core sample from a minor's cabin (marked "X")
- tree cross sections (1 per 2 students)
- paper *
- pencil *

- * items brought by group leader

Procedure:

1. Divide students into partners.
2. Give each student group a simulated core sample marked “A” and “X”.
3. Have students complete the worksheet.
4. Discuss the completed worksheet.

Post Activity:

- Measure the Circumference: Take a hike around the school neighborhood. Identify the species of trees. Measure the circumference of each tree. Compare circumferences of saplings and old trees. Estimate how old you think some of the trees are and explain your answer. Discuss what history you think the trees have seen over their life times.
- Research and discuss “old growth forests”. What is the impact they have on surrounding habitats? On the species that live in them? Where are old growth forests located in the U.S.A.? Are there any in Iowa? Why or why not?
- Invite someone from the DNR (forestry) to your classroom to discuss deforestation and reforestation in Iowa and what YOU can do to help the forests in Iowa.

Post Discussion:

- How do forests impact our environment?
- What do we receive from forests?
- Does Iowa have native forests?
- What has happened to the forests in Iowa?
- Discuss what you can do to impact the forests in Iowa?
- Make one promise to the forests in Iowa!